APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report. Nos. 50-445/92-09
50-446/92-09

Operating License No. NPF-87

Construction Permit No. CPPR-127

Licensee: TU Electric
Skyway Tower
400 North Olive Street
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Units 1 and 2

Inspection At: CPSES, Glen Rose, Texas

Inspection Conducted: February 10 through March 19, 1992

Inspectors: M. E. Murphy, Reactor Inspector, Test Programs Section
Division of Reactor Safety

H. F. Bundy, Reactor Inspector, Test Programs Section, Division of Reactor Safety

L. D. Gilbert, Reactor Inspector, Materials and Quality Programs Section, Division of Reactor Safety

L. E. Ellershaw, Reactor Inspector, Materials and Quality Programs Section, Division of Reactor Safety

D. N. Graves, Senior Resident Inspector, Project Section B
Division of Reactor Projects

R. M. Latta, Resident Inspector, Project Section B, Division of Reactor Projects

G. W. Werner, Resident Inspector (Trainee), Project Section B
Division of Reactor Projects

Approved: Dwight D. Chamberlain for 4-3-92
J. E. Gagliardo, Chief, Test Programs Section Date
Division of Reactor Safety

Inspection Summary

Inspection Conducted February 10 through March 19, 1992 (Report 50-445/92-09)

Areas Inspected: No inspection of Unit 1 was conducted.

Results: Not applicable.

Inspection Conducted February 10 through March 19, 1992, (Report 50-446/92-09)

Areas Inspected: Routine, announced inspection of the reactor coolant system hydrostatic test, consisting of procedure review and test witnessing.

Results: Within the areas inspected, no violations or deviations were identified. The procedure review confirmed that the basic test procedure and supporting administrative procedures were technically acceptable and consistent with regulatory requirements, guidance, and licensee commitments. The licensee's review for and incorporation of lessons learned from the Unit 1 cold-hydrostatic test was found to be both thorough and comprehensive. The test met all acceptance criteria; test conduct and inspection coordination were found to be excellent. Problems and deficiencies that occurred during the test performance were handled deliberately and professionally.

DETAILS

1. PERSONS CONTACTED

TU ELECTRIC

P. Anderson, Unit 2 Overview
O. Bhatty, Licensing Engineer
L. Bradshaw, Stipulation Manager Representative
H. Bruner, Senior Vice President
W. Cahill, Jr., Group Vice President
H. Carmichael, Unit, Engineering Assurance Manager
D. Cruz, Unit 2, Code Control Program
R. Daly, Manager Startup
J. Green, Licensing Engineer
W. Guldemond, Manager, Independent Safety Engineering Group
E. Gully, Unit 2, Engineering Management
S. Harrison, Manager, Unit 2, Project Overview
T. Heatherly, Licensing Engineer
L. Hurst, Project Manger
D. Kross, Unit 2 Operations Manager
R. Martell, Project Overview
D. McAfee, Manager, Quality Assurance
T. Mewhinney, Mechanical Maintenance Supervisor
G. Ondriska, Startup
D. Pendleton, Unit 2, Regulatory Services Manager
S. Poteate, Assistant Operations Manager, Unit 2
G. Purdy, Site Quality Assurance Manager
C. Rau, Unit 2 Project Manger
A. Scott, Vice President, Nuclear Operations
R. Spence, Unit, Quality Control Manager
G. Stein, Mechanical maintenance Manager
C. Terry, chief Engineer
J. Thompson, Senior Engineer
R. Walker, Manager of Nuclear Licensing
D. Webster, Manager of Construction
B. Wieland, Manger, Maintenance
C. Wilson, Project Manager, Technical Support
J. Wren, Construction Quality Assurance Manager

CITIZENS ASSOCIATION FOR SOUND ENERGY (CASE)

O. Thero, Consultant

NRC

V. Gaddy, Reactor Engineer Intern
T. Gwynn, Deputy Director, Division of Reactor Projects
T. Reis, Project Engineer

The inspectors also worked with and interviewed other personnel during the inspection.

2. PROCEDURE REVIEW (70362, 70300)

This part of the inspection was to ensure that the procedural requirements were technically acceptable and consistent with regulatory requirements, guidance, and licensee commitments. The inspectors reviewed the following procedures:

- 2CP-PT-55-01, "Reactor Coolant System Cold Hydrostatic Test," Revision 0, dated February 18, 1992
- ACP-12.1, "Pressure Testing," Revision 6, dated September 12, 1991 (Brown and Root ASME Construction Procedure)
- CP-SAP-21, "Conduct of Testing," Revision 5, dated November 12, 1990
- CP-SAP-16, "Deficiency and Nonconformance Reporting," Revision 15, dated April 16, 1991
- CP-SAP-19, "Indoctrination/Training/Qualification Requirements for Startup Personnel," Revision 12, dated August 12, 1991
- CP-SAP-11, "Review, Approval and Retention of Test Results," Revision 9, dated June 17, 1991
- CP-SAP-13, "Preoperational Testing," Revision 0, dated February 14, 1992

This review confirmed that the basic procedure, 2CP-PT-55-01, provided for accurate and complete test controls including provisions for establishing communications and coordination, delineation of test acceptance criteria, and selection and installation of test equipment. The procedure also provided test prerequisites and precautions ,and procedural sign-offs for test control and accountability.

Procedure 2CP-PT-55-01 was also reviewed for consistency with the requirements of Procedure ACP-12.1, "Pressure Testing," and Section III of the ASME Boiler and Pressure Vessel Code. The basic procedure was found to be consistent with the requirements of the reference documents. These requirements included the test medium, minimum test temperature to minimize the possibility of brittle fracture, test instruments, venting of adjacent systems and installation of relief valves for over-pressure protection, venting during filling of the system, minimum and maximum test pressure, test pressure holding time, examination for leakage, and witnessing of the test by the authorized nuclear inspectors (ANIs).

The inspectors also reviewed the licensee's program for incorporating lessons learned from the Unit 1 reactor-coolant system hydrostatic test. This

consisted of a review of the Quality Technology Company (QTC) Report, the licensee's independent review of the Unit 2 hydrostatic testing program and Engineering Report ER-ME-01. The review confirmed that the applicable improvements were incorporated into Procedure 2CP-PT-55-01. For example isometric drawings used for the inspection during pressure testing reflected as-built conditions such as vendor welds, field welds and base metal repairs; proper calibration of the primary test gauge, both before and after testing; test gauges properly located and compensated for elevation; and, steam generator temperatures and levels monitored during the hydrostatic test.

3. REACTOR COOLANT SYSTEM HYDROSTATIC TEST WITNESSING (70462)

Prior to the actual test, the inspectors participated in preliminary briefings of the principle licensee test participants and observed preliminary walkdowns by the 12 inspection teams assigned for the test; these teams consisted of craft, quality control personnel, and ANI representatives. After system fill, venting, and initial pressurization, the inspectors attended the pre-test briefing of the individuals involved with the test. This briefing, conducted in the Unit 2 control room, was thorough and addressed the purpose and objectives of the test, established the minimum and maximum reactor coolant system temperature and pressure, station manning, method of pressurization and pressure control, the test plateaus, and system inspection objectives. This briefing was conducted in a professional manner and appropriate levels of management involvement were observed.

The inspectors witnessed the reactor coolant system hydrostatic test on March 10-11, 1992. One inspector observed pressure control on the official and backup pressure gauges. The other inspectors accompanied 5 of the 12 inspection teams on their official leak inspections. These inspections were accomplished using official weld identification drawings. The system inspection areas observed by the inspectors are identified by the drawings listed in the Attachment. These inspections were visual only and satisfactory completion was documented by sign-off on each drawing.

The inspectors also witnessed the monitoring of the metal temperature at the nine specified locations on the reactor vessel, steam generators, and pressurizer. All nine temperatures were above the minimum specified temperature of 125° F for the four locations on the reactor vessel and 132° F for the four locations on the steam generators and one location on the pressurizer.

The procedure required maintaining a test pressure of 3112 to 3200 psig for 10 minutes. The inspector observed that this was accomplished between 11:04 p.m. and 11:16 p.m. on March 10, 1992, at which time the required sign-offs were completed. The pressure was then decreased and maintained between 2490 and 2600 psig for approximately 3 hours for the leak inspections. The inspectors verified that the test pressure gauges had been calibrated prior to and after the test performance, and there were no discrepancies.

No leaks indicative of test failure were identified by the inspectors or the

licensee. Several mechanical leaks were identified by the licensee and observed by the inspectors. The licensee documented these deficiencies and initiated action to make repairs as allowed by the procedure. While inspections observed appeared to be well documented, the final test results will be rviewed during a future NRC inspection.

Test and inspection coordination were found to be excellent. Problems and deficiencies incurred during test performance were handled deliberately and professionally.

4. EXIT MEETING

The inspection scope and findings were summarized in an exit meeting on March 19, 1992, with the personnel listed in paragraph 1 of this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during this inspection.

ATTACHMENT

Drawing No.	Revision
BRP-RC-2RB-058	CP-2
BRP-SI-2RB-034	CP-2
BRP-SI-2RB-032	CP-5
BRP-RC-2RB-065	CP-3
BRP-SI-2RB-075	CP-5
BRP-SI-2RB-075 (Sheet 2)	CP-3
BRP-SI-2RB-030	CP-3
BRP-SI-2RB-030 (Sheet 2)	CP-2
BRP-SI-2RB-028	CP-2
BRP-SI-2RB-028 (Sheet 2)	CP-3
BRP-SI-2RB-026	CP-3
BRP-SI-2RB-026 (Sheet 2)	CP-3
BRP-SI-2RB-010C	CP-5
BRP-SI-2RB-010B	CP-3
BRP-SI-2RB-027	CP-3
BRP-SI02RB-027 (Sheet 2)	CP-2
BRP-SI-2RB-056	CP-2
BRP-SI-2RB-073	CP-2
BRP-SI-2RB-073 (Sheet 2)	CP-3
BRP-RC-2-RB-004 (Sheet 1)	CP-2
BRP-RC-2-RB-004 (Sheet 3)	CP-2
BRP-RC-2-RB-004 (Sheet 4)	CP-2
BRP-RC-2-RB-073 (Sheet 1)	CP-1
BRP-SI-2 SB-031 (Sheet 1)	CP-3
BRP-SI-2-SB-039 (Sheet 1)	CP-4
BRP-SI-2-SB-042 (Sheet 1)	CP-6
BRP-SI-2-SB-042 (Sheet 2)	CP-2
1553E84 (Sheet 2)	CP-1
S02252, Item 6 (Sheet 2)	3
S02252, Item 6 (Sheet B1)	1
902252, Item 17 (Sheet B1)	2
BRP-RH-2-RB-003 (Sheet 1 of 2)	CP-3
BRP-RC-2-RB-021 (Sheet 1 of 2)	CP-6
BRP-RC-2-RB-019 (Sheet 1 of 2)	CP-2
BRP-RC-2-RB-076 (Sheet 1 of 2)	CP-4
BRP-RC-2-RB-067 (Sheet 1 of 2)	CP-3
BRP-SI-2-RB-061 (Sheet 1 of 2)	CP-2
12-0123 (Sheet 1 of 1)	CP-2
BRP-RC-2-RB-029 (Sheet 1 of 1)	CP-1
BRP-RC-2-RB-077 (Sheet 1 of 2)	CP-3
BRP-SI-2-RB-039 (Sheet 1 of 2)	CP-2
BRP-SI02-RB-041 (Sheet 1 of 2)	CP-6
BRP-RC-2-RB-018 (Sheet 1 of 2)	CP-4
BRP-RC-2-RB-025 (Sheet 1 of 2)	CP-2
BRP-RC-2-RB-045 (Sheet 1 of 2)	CP-2
BRP-RC-2-RB-062 (Sheet 1 of 2)	CP-4
BRP-SI-2-RB-010A (Sheet 1 of 2)	CP-4
BRP-SI-2-RB-013 (Sheet 1 of 2)	CP-5
BRP-SI-2-RB-014B (Sheet 1 of 2)	CP-3

BRP-SI-2-RB-018 (Sheet 1 of 2)	CP-4
BRP-SI-2-RB-018 (Sheet 2 of 2)	CP-2
BRP-SI-2-RB-0021 (Sheet 1 of 2)	CP-3
BRP-SI-2-RB-023 (Sheet 1 of 2)	CP-4
BRP-SI-2-RB-035 (Sheet 1 of 2)	C-2
BRP-SI-2-RB-035 (Sheet 2 of 2)	CP-3
BRP-SI-2-RB-049 (Sheet 1 of 2)	CP-2
BRP-SI-2-RB-078 (Sheet 1 of 2)	CP-3